

## Message

**From:** Buckley, Timothy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=197A3461D9824A17850F34CC2B0B37FE-BUCKLEY, TIMOTHY]  
**Sent:** 2/6/2020 1:13:44 PM  
**To:** Ferguson, Holly [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=146883cc770a463d99bebb22e807aa99-Ferguson, Holly]  
**Subject:** FW: Cincinnati PWS service area  
**Attachments:** Lindstrom EST2017 PFAS UCMR3.pdf

Holly,

FYI, see email string below.

Tim

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**From:** Buckley, Timothy  
**Sent:** Thursday, February 6, 2020 8:13 AM  
**To:** Andrew Stoeckle <Andrew.Stoeckle@erg.com>; Gillespie, Andrew <Gillespie.Andrew@epa.gov>; Montilla, Alex <Montilla.Alex@epa.gov>  
**Cc:** Matthew Heyward <Matthew.Heyward@erg.com>; Barrette, Michael <Barrette.Michael@epa.gov>; Scheitlin, Tom <Scheitlin.Tom@epa.gov>; Lanier, Sarah <Lanier.Sarah@epa.gov>; Brielle Kissel Meade <Brielle.Kissel@erg.com>; Lindstrom, Andrew <Lindstrom.Andrew@epa.gov>  
**Subject:** RE: Cincinnati PWS service area

Thank you Andrew. I do think that this does raise a QA concern over the use of UCMR zip codes. In Andy Lindstrom's 2017 paper (Hu et al.) they used HUC8 (attached). I am adding him to this thread for his input. The relevant methods paragraph is given below.

One limitation of the UCMR3 database is that national data on system intakes for public water supplies are classified,<sup>29</sup> making it difficult to place them within a specific hydrological network. We therefore extracted the zip codes for areas served and aggregated data within eight-digit HUCs<sup>30</sup> to capture the most detailed hydrologic information that exceeds the spatial resolution of PFAS data (zip code areas). We used the highest reported PFAS concentrations when multiple systems were located within a single zip code and/or when multiple zip code areas were located within the same HUC.

There are also some folks in our Epi Branch who are estimating population served by community water systems. I will reach out to see if they have any suggestions.

Tim

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**From:** Andrew Stoeckle <Andrew.Stoeckle@erg.com>  
**Sent:** Thursday, February 6, 2020 12:26 AM  
**To:** Gillespie, Andrew <Gillespie.Andrew@epa.gov>; Montilla, Alex <Montilla.Alex@epa.gov>  
**Cc:** Matthew Heyward <Matthew.Heyward@erg.com>; Buckley, Timothy <Buckley.Timothy@epa.gov>; Barrette, Michael <Barrette.Michael@epa.gov>; Scheitlin, Tom <Scheitlin.Tom@epa.gov>; Lanier, Sarah <Lanier.Sarah@epa.gov>; Brielle Kissel Meade <Brielle.Kissel@erg.com>  
**Subject:** Cincinnati PWS service area

To close the loop,

- In UCMR 3, the Cincinnati, OH PWS reported one ZIP code to describe their service area (45228).
- In UCMR 4, they reported one ZIP code (45230). For UCMR 1, they reported no ZIP codes to describe their service area and one ZIP code in UCMR 2. Mining other, ideally more recent, UCMRs would not improve the situation for Cincinnati records.
- The Greater Cincinnati Water Works website says they serve 750,000 with a service area that includes “the entire City of Cincinnati, most of Hamilton County and parts of Butler and Warren Counties in Ohio. In 2003, GCWW started selling water to Boone County and Florence, Kentucky via a pipeline installed under the Ohio River.” They are clearly missing ZIP codes.
- As Matthew and Alex pointed out, Qlik is rendering the reported service area ZIP codes for Cincinnati correctly. 45228 is not associated with a geographic area, just a point.
- OW has previously raised the quality/completeness of ZIP code reporting. To detect the prevalence of emerging contaminants, the results of required sampling and population served are certainly more important than geospatial specification of service areas. However, representation of service areas as points would be difficult to make sense of.
- The National PFAS Data Explorer’s disclaimer for the UCMR layer discloses the issue of incomplete ZIP code reporting.

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Ex. 6 Personal Privacy (PP)